# Racial and Ethnic Disparities in the Use of Health Services

## Bias, Preferences, or Poor Communication?

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African Americans and Latinos use services that require a doctor's order at lower rates than do whites. Racial bias and patient preferences contribute to disparities, but their effects appear small. Communication during the medical interaction plays a central role in decision making about subsequent interventions and health behaviors. Research has shown that doctors have poorer communication with minority patients than with others, but problems in doctor-patient communication have received little attention as a potential cause, a remediable one, of health disparities. We evaluate the evidence that poor communication is a cause of disparities and propose some remedies drawn from the communication sciences.

KEY WORDS: communication; racial disparities; race; health care utilization.

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A frican Americans and Latinos use health services at lower rates than do white Americans. Although lower use does not always mean underuse, in some conditions, for example lung cancer<sup>1</sup> and coronary heart disease, <sup>2-4</sup> lower rates of use are associated with lower survival rates.

Disparities in health services use and outcomes have been attributed to differences in access to care. Abundant evidence shows that compared with whites, African Americans and Latinos have lower incomes, less education, lower rates of private health insurance coverage, a higher probability of being underinsured, and greater dependence on public health care programs, all of which impede the ability to seek and obtain timely services. However, what is most intriguing is that African Americans and Latinos use services that require a doctor's order (e.g., invasive procedures, hospitalization, operations) at lower rates than do whites, even when their access to care, diagnosis, and illness severity are the same. This means that some disparities in use emerge

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after the patient gets to the doctor, not from difficulties in getting to the doctor in the first place. In other words, some disparities are emerging from the context of the doctor-patient interaction.

There are three possibilities that might explain this phenomenon: racial bias on the part of the doctor, patient preferences, and poor communication. In this paper, after briefly touching on what is known about how racial bias and patient preferences affect health disparities, we will examine in depth the role poor doctor-patient communication might be playing. Poor communication has received very little attention as a cause for disparities in use and health outcomes, but its role in producing disparities is supported by theoretical as well as empirical work in communication sciences.

## THE BIAS HYPOTHESIS

Because of conscious or unconscious racial bias, perhaps doctors do not offer or prescribe the same services for African Americans and Latinos that they do for whites. For this to be true, the evidence must show that the patient's race and ethnicity are at times such strong influences on the doctor's clinical reasoning and recommendations that they override the effects of diagnosis and illness severity. We believe that most doctors strive to keep their clinical work free of bias. Yet social psychology research documents that bias can occur without intention or recognition, and that certain situational factors, e.g., working under time pressure, can boost the effects of racial or gender stereotypes. 5-7 In a widely quoted 1996-97 study, 8,9 doctors who did not know the research question viewed videotapes of simulated patients using scripted symptom descriptions whose clinical characteristics were held constant but whose race and gender were varied. Doctors were somewhat less likely to refer African-American women for cardiac catheterization than white men, African-American men, and white women. Although the effects were small, these findings establish that skin color and gender can influence doctors' diagnostic and test-ordering proclivities. Moreover, other things besides skin color, e.g., the physician's perceptions about the patient's social class and education, may lead to bias on the part of the physician. 10 Nonetheless, the effects of bias have been small in empirical studies to date. Racial and ethnic disparities in the use of services requiring a doctor's referral are large, and unlikely to be solely attributable to racial bias.

#### THE PREFERENCES HYPOTHESIS

Perhaps African Americans and Latinos choose to forego certain services and their potential benefits because of personal preferences and values rooted in their race and ethnicity. Few studies have directly assessed preferences, but their findings do not indicate African Americans systematically prefer fewer services compared with whites. African Americans are more likely than whites to seek mental health services for depression, 11 and want more aggressive end-of-life care than do whites. 12 On the other hand, African Americans may be more averse than whites to surgical risks, although we are aware of only 1 study that has explored this. 13

The assumptions underlying the preferences hypothesis are dubious. Even if doctors make the same recommendations to all patients who have the same condition and illness burden (which is challenged by evidence reviewed above), the assumption that patients' values and preferences impel them to follow or not to follow doctors' recommendations directly implies that patients are informed decision makers. However, an abysmal 9% of clinical decisions met reasonable criteria for informed decision making in a 1993 study of 1,057 audiotaped medical interactions.14 The ethical model of informed decision making requires intense dialog between doctor and patient. 15 Such dialog may be more problematic for African-American and Latino patients, because with minority patients, doctors have poorer interpersonal skills, 16 provide less information, 17 and use a less-participatory decision-making style. 18-20 It is unlikely that patients' preferences are the driving force for racial and ethnic disparities in health care use and outcome.

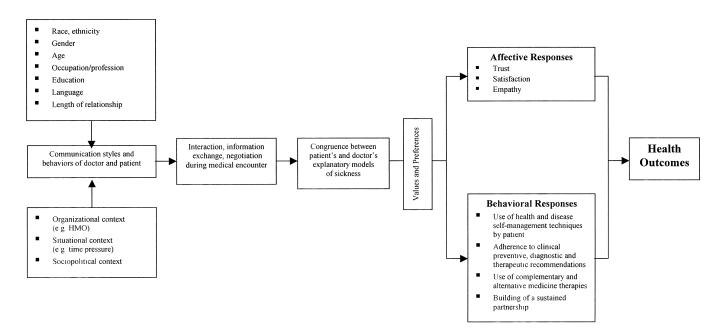
## THE COMMUNICATION HYPOTHESIS

Not surprisingly, communication behaviors during the medical interaction influence patient satisfaction, 16,18,21-23 adherence to the doctor's recommendations, 16,24 and the likelihood of malpractice claims. 25 What is surprising, at least to some doctors, is the evidence tying good communication during the medical interaction to better disease outcomes. In a study of urban, indigent people with high blood pressure, those who gave more information to their doctor about their history and symptoms had lower blood pressures 4 weeks after the visit.24 An Ontario study showed that the probability that a main symptom would resolve in 2 weeks was related to the extent the doctor allowed the patient to express symptoms, expectations, thoughts, and feelings.<sup>26</sup> More powerful evidence comes from a set of studies in which patients were randomized to a previsit coaching session on how to ask questions and negotiate with their doctor. 27-29 Compared with noncoached, disease-matched controls, intervention patients with peptic ulcers had better functional status gains, diabetics had greater functional status and lower hemoglobin A1c levels, and women undergoing chemotherapy for breast cancer reported fewer medication-related symptoms, 6 to 12 weeks after the visit.

What is it that goes on during a medical interaction that can explain these phenomena? In a conceptual framework drawing from the disciplines of anthropology, communication sciences, medicine, social psychology, and sociology (Fig. 1), the anthropological concept of the "explanatory model of sickness," first brought into medical practice by Arthur Kleinman, 30 plays a key role. The explanatory model of sickness is a conceptual construction that explains clinical phenomena. Both the patient and the doctor have one, and although they appear to include the same domains (cause, symptom onset, control and meaning, pathophysiology, prognosis and course, treatment), their content varies substantially. To quote Kleinman, "modern [Western] physicians diagnose and treat diseases (abnormalities in the structure and function of bodily organs and systems), whereas patients suffer illnesses (experiences of disvalued changes in states of being and in social function)." Explanatory models are products of national culture, racial and ethnic culture, gender culture, occupational and professional culture, education and knowledge, social class, religious beliefs, and personality

Explanatory models are important because they drive behavior.30 The doctor's model drives his or her clinical behavior, i.e., the formulation of a differential diagnosis and a diagnostic and therapeutic plan for the patient. The patient's model drives his or her illness behavior: the monitoring and interpretation of bodily symptoms, decisions to seek formal or informal care, and decisions to follow recommended treatment plans. Because explanatory models drive behavior, the key activity for the doctor and the patient during the medical interaction is to achieve an understanding of one another's perspectives and develop some degree of congruence between their explanatory models. Congruence may be a necessary although insufficient precondition for trust, satisfaction, respect for preferences, adherence with recommendations, salutary self-management behaviors, and mutuality in the way treatment outcomes are evaluated. "Hypertension" is an example of a label that often evokes different explanatory models in doctor and patient. The patient who believes excessive stress causes elevated blood pressure may feel he or she needs a sedative rather than a blood pressure pill and will find it difficult to share the doctor's enthusiasm for dietary salt restriction. Other everyday examples of incongruent models include patients' requests for antibiotics for viral upper respiratory infections and computed tomography scans for tension headaches.

The development of congruence between the patient's and doctor's explanatory models for the patient's sickness depends on the effectiveness of communication during the medical interaction. Because patient and doctor come from different cognitive and value orientations, to develop a shared model they must elicit information from each other,



**FIGURE 1.** Proposed conceptual framework for how race and ethnicity affect the communication patterns of patient and doctor, their attempts to understand each other's explanatory models for the sickness, and their ability to negotiate to congruence between the respective models. Communication drives the achievement or lack of congruence between the explanatory models. The extent to which the patient and doctor develop congruence between their respective models affects affective and behavioral responses on the part of the patient. In turn, these affective and behavioral responses affect health outcomes.

provide information to one another, and negotiate to reconcile differences in perspective. If patient and doctor start out with widely disparate explanatory models, as they would, for example, if they came from different national cultures or from different racial and ethnic groups from within the same country, effective doctor-patient communication is even more important—and more difficult.

The framework in Figure 1 posits that the doctor and patient must develop a shared model if the encounter is to result in the favorable behaviors (e.g., adherence to a treatment plan) and affective responses (e.g., satisfaction and trust) that can lead to better health outcomes. Negotiation to a shared model should be the principal task of the medical interaction, and the process of negotiation depends on communication skills. A plausible explanation for the lower use of referral services by African Americans and Latinos, even when access to care, diagnosis, and severity are the same as whites, is that poor communication during the medical interaction impedes the development of a shared explanatory model. Poor communication undermines each partner's ability to describe his or her own explanatory model, field questions about the model from the partner, and question the partner about his or her explanatory model.

The race and ethnicity of doctor and patient can affect their ability to communicate and negotiate to a shared model in several ways. The most obvious is language or dialect discordance. Even when the interactants speak the same language, they may use and interpret terms, idioms, and metaphors differently.<sup>31</sup> In addition, ethnic groups have preferred styles of communicating. For example, people from individualistic cultures tend to be more direct, assertive, and expressive, whereas people from collectivist cultures tend to be indirect, deferential to authority, and accommodating.<sup>32</sup> Moreover, doctor-patient communication is set within different institutional (e.g., managed care), sociopolitical, and ideological contexts. Interactions between African Americans and whites occur within a unique historical and sociopolitical context that influences the partners' sense of balance, power, and trust.<sup>33,34</sup>

Exploring the hypotheses that emerge from Figure 1 is of more than academic interest. If poor communication is the culprit, communication skills can be improved.

Communication between doctor and patient has been the subject of earnest empirical research since the late 1960s. The rich set of approaches, theories, and techniques that have been used to assess communication behaviors, style, and content during the medical interaction includes perceptual and behavioral measures. Perceptual measures use postvisit questionnaires to assess interactants' (patient or doctor or both) views of communication during the encounter. For example, patients can be asked to report on their level of participation in the interaction, the level of control they felt they had in decision making, and their doctor's informativeness. The landmark Medical Outcomes Study used a 3-item perceptual measure of communication called the "Participatory Decision-Making Scale." This scale has been used in recent work as

well.<sup>38</sup> Quantitative measures of interactants' behavior can be made by applying interaction analysis techniques to transcripts, videotapes, or audiotapes of encounters. Interaction analysis systems are derived from sociolinguistic analytic methods, such as discourse or conversational analysis. They can be used to classify verbal units into categories such as task-oriented ("Take a deep breath") or affective ("With such bad arthritis it must be hard for you to open car doors"). Interaction analysis has also been used to create a taxonomy of doctors' communication patterns during medical interactions.<sup>21</sup> Interaction analytic methods differ in several aspects (e.g., theoretical orientation, elements coded). Different interaction analysis methods applied to the same medical encounter can lead to divergent findings,39 as can perceptual (postvisit questionnaires) and interaction analysis measures of the same encounter.<sup>36</sup> The differences in measures reflect the complexity of interpersonal communication and the assumptions the measures make about communication functions and structures.

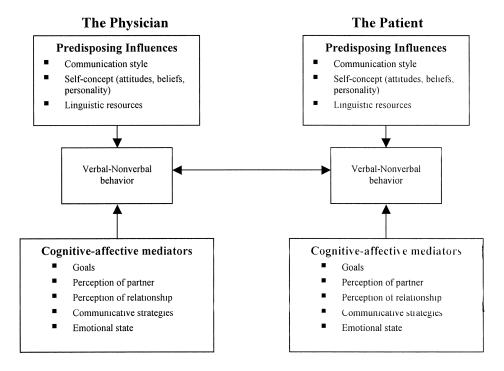
The influence of race and ethnicity on doctor-patient communication received little attention until recently. A 1988 meta-analysis of correlates of provider behaviors in medical interactions found only 4 studies in which race and ethnicity had been included. The findings suggested that African Americans and Latinos receive poorer care during the interaction than do whites. 40 African Americans rate visits with their physicians as less participatory than do

whites. <sup>19,20</sup> Primary care physicians are more likely to adopt a narrowly biomedical communication pattern with African Americans, a pattern associated with low satisfaction ratings for patients as well as doctors. <sup>21</sup>

## CAN COMMUNICATION BEHAVIORS BE CHANGED?

If the causal chain proposed in Figure 1 is as hypothesized, communication assumes center stage. To what extent can doctors and patients learn and maintain more effective ways of communicating during the medical interaction? To what extent are adults' communicative style and behaviors adaptable rather than fixed?

All interpersonal encounters, medical and otherwise, typically reveal patterns of adaptation as well as consistence (Fig. 2). 41-43 On the one hand, people develop communication styles that they use across various social interactions, including medical encounters. 21,41 These communicative predispositions are linked to age, education, linguistic skill, and ethnicity. Communicators also adapt their behavior to different partners and situations. Adaptation is linked to cognitive-affective factors such as the goals of the interaction (e.g., annual check-up versus discussion of advance directives), the length of the doctor-patient relationship, and emotional state. Importantly for our purposes, adaptations also are made in response to the partner's communicative actions. For example, because interpersonal



**FIGURE 2.** Processes related to communicative consistency or adaptation. Predisposing factors lead to consistency in communicative behaviors, but cognitive-affective mediators, among them communicative strategies, lead partners to adapt their communicative behaviors to each other. Communicative strategies on the part of the patient, including telling a health narrative, asking questions, expressing concern, and being assertive, lead to changes in the way the doctor interacts with the patient.

encounters require coordination of turn-taking and topic development, one partner's communication will significantly influence the other's subsequent response.

One of the most important findings to emerge from medical interaction research has been that patients' communicative behaviors influence those of doctors. Specific forms of speech by the patient influence the doctor's behavior and the events of the visit. 44 The 4 key ways by which a patient is able to influence the doctor's behavior are providing a health narrative (which reveals the patient's explanatory model), asking questions, expressing concerns, and being assertive. 35,37,45 These are powerful forms of speech for patients because they evoke, as well as constrain, the doctor's verbal and nonverbal responses. Empirical evidence supports the linguistic model of patient participation. Patients who ask more questions and express more concerns receive more information from doctors, 28,42,45 a resource universally valued by patients. Patients who participate actively in the medical interaction are better able to recall what the doctor recommended and what health issues were discussed. 46,47 Doctors believe they have a better idea of what patients need and the extent to which they are satisfying those needs when patients are actively engaged in the interaction.<sup>48</sup> Doctors perceive patients who state their concerns and ask questions as better communicators. 49 Patients from different ethnic groups may be more or less inclined to provide a health narrative to the doctor, may use different terms to describe the same phenomenon, and may screen out elements of their explanatory model that they think the doctor will find unacceptable. Also, ethnic and cultural norms influence a patient's propensity to ask questions, express concerns, and be assertive during a medical interaction. However, there is no empirical evidence that the power exerted on the doctor's communication behavior by narrative, questioning, expression of concerns, and assertiveness differs by the patient's race or ethnicity.

If patients' communication behaviors influence those of doctors, what is the evidence that patients can learn optimizing communication behaviors and put them to use? At least 4 randomized trials have documented the efficacy of brief previsit sessions in which patients are coached in verbal behavioral techniques to increase their participation in the encounter. <sup>27–29,50</sup> These 4 studies documented that compared with the controls, intervention patients not only increased their communication behaviors, but also had improved health outcomes. There was no evidence of racial or ethnic differences in the ability to learn these techniques or in their efficacy in these 4 studies, although the number of patients from ethnic minority groups was small.

## SUGGESTIONS FOR ACTION

Our suggestions for action focus on what the doctor can do and what can be done for patients to help them learn to communicate more effectively with their health care providers.

During each encounter, the doctor needs to provide openings and prompts to help the patient do 4 things: provide a health narrative, ask questions, express concerns, and be assertive. The health narrative is the means by which patients share their explanatory model, and can serve as the framework for questioning and the expression of concerns. It is particularly important that the doctor elicit the patient's explanatory model (and share his or hers) with a new patient or a new problem in an established patient. The doctor can prompt the patient to describe the 5 domains of the explanatory model (cause, symptom onset, control and meaning, pathophysiology, prognosis, and treatment) in the health narrative, using questions such as "What do you think is causing your symptoms?" "What does this condition mean to you and how is it affecting your daily life?" "What do you think will happen to you?" The doctor also needs to share with the patient the 6 domains of his or her explanatory model for the condition, respectfully noting differences between the 2 models, and eliciting questions and concerns.

Doctors can also evaluate their own communication competence. Brief postvisit surveys of patients' perceptions of the doctor's communication styles and behaviors  $^{19.35-38}$  can provide systematic information that can be acted upon. Some doctors may want to seek formal training to improve their communication behaviors.

However, our focus is on the patient's communication behaviors. How is it possible to educate patients on using the 4 techniques that research has shown to be effective in improving the interaction and subsequent health outcomes? Our group has been providing a series of free "How to Talk With Your Doctor (and Get Your Doctor to Talk With You!)" forums to community groups in the greater Houston area.<sup>51</sup> The pre-post tests of participants in these forums show improvements in self-assessed knowledge and skills, but we do not know whether these are put into action during the next medical encounter. Physicians and their office staffs might consider hosting group visits on "How To Talk With Your Doctor." Other strategies might be directed at patients in the waiting room. For example, nursing staff might conduct brief previsit coaching sessions with patients. These coaching sessions are documented to be effective. 27-29,50 Pocket cards and waiting-room videotapes might also be useful.

The evidence indicates that racial and ethnic disparities in health care and health outcomes are not due solely to racial bias on the part of doctors or preferences on the part of patients. Poor communication during the medical interaction may be a remediable etiology of disparities in care.

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## **REFERENCES**

- Bach PB, Cramer LD, Warren JL, Begg CB. Racial differences in the treatment of early-stage lung cancer. N Engl J Med. 1999;341: 1198-205.
- Petersen LA, Wright SM, Peterson ED, Daley J. Impact of race on cardiac care and outcomes in veterans with acute myocardial infarction. Med Care. 2002;40(suppl):186-96.
- [No authors listed]. Coronary heart disease mortality trends among whites and blacks—Appalachia and United States, 1980–1993. Morb Mortal Wkly Rep. 1998;47:1005–8.
- Canto JG, Allison JJ, Kiefe CI, et al. Relation of race and sex to the use of reperfusion therapy in Medicare beneficiaries with acute myocardial infarction. N Engl J Med. 2000;342:1094–100.
- Pratto F, Bargh JA. Stereotyping based on apparently individuating information: trait and global components of sex stereotypes under attention overload. J Exp Soc Psychol. 1991;127:26, 47.
- Kruglanski AW, Freund T. The freezing and unfreezing of lay inferences: effects of impressional primacy, ethnic stereotyping, and numerical anchoring. J Exp Soc Psychol. 1983;19:448–68.
- Stangor C, Duan C. Effects of multiple task demands upon memory for information about social groups. J Exp Soc Psychol. 1991:27:357-78.
- Schulman KA, Berlin JA, Harless W, et al. The effect of race and sex on physicians' recommendations for cardiac catheterization. N Engl J Med. 1999;340:618–26.
- Schwartz LM, Woloshin S, Welch HG. Misunderstandings about the effects of race and sex on physicians' referrals for cardiac catheterization. N Engl J Med. 1999;341:279–83.
- van Ryn M. Research on the provider contribution to race/ ethnicity disparities in medical care. Med Care. 2002;40(suppl): 140-51.
- Diala CC, Muntaner C, Walrath C, Nickerson K, LaViest T, Leaf P. Racial/ethnic differences in attitudes toward seeking professional mental health services. Am J Public Health. 2001;91:805-7.
- Shepardson LB, Gordon HS, Ibrahim S, Harper DL, Rosenthal GE.
  Racial variation in the use of do-not-resuscitate orders. J Gen Intern Med. 1999;14:15–20.
- Oddone EZ, Horner RD, Lipscomb J, et al. Understanding racial variation in the use of carotid endarterectomy: the role of aversion to surgery. J Natl Med Assoc. 1998;90:25–33.
- Braddock CH, Edwards KA, Hasenberg NM, Laidley TL, Levinson W. Informed decision making in outpatient practice. JAMA. 1999; 282:2313-20.
- Quill TE, Brody H. Physician recommendations and patient autonomy: findings and balance between physician power and patient choice. Ann Intern Med. 1996;125:763-9.
- Bartlett EE, Grayson M, Barker R, Levine DM, Golden A, Libber S. The effects of physician communication skills on patient satisfaction, recall, and adherence. J Chronic Dis. 1984;37:755-64.
- Blendon RJ, Aiken LH, Freeman HE, Corey CR. Access to medical care for black and white Americans: a matter of continuing concern. JAMA. 1989;261:278-80.
- Kaplan SH, Greenfield S, Gandek B, Rogers WH, Ware JE. Characteristics of physicians with participatory decision-making styles. Ann Intern Med. 1996;124:497-504.
- Kaplan SH, Gandek B, Greenfield S, Rogers W, Ware JE. Patient and visit characteristics related to physicians' participatory

- decision-making style. Results from the Medical Outcomes Study. Med Care. 1995:33:1176–87.
- Cooper-Patrick L, Gallo JJ, Gonzales JJ, et al. Race, gender, and partnership in the patient-physician relationship. JAMA. 1999; 282:583-9.
- Roter DL, Stewart M, Putnam SM, Lipkin M, Stiles W, Inui TS. Communication styles of primary care physicians. JAMA. 1997; 277:350-6.
- Ong LML, deHaes JCJM, Hoos AM, Lammes FB. Doctor-patient communication: a review of the literature. Soc Sci Med. 1995;40: 903-18.
- Stewart M. What is a successful doctor-patient interview? A study of interactions and outcomes. Soc Sci Med. 1984;19:167-75.
- Orth JE, Stiles WB, Scherwitz L, Hennrikus D, Vallbona C. Patient exposition and provider explanation in routine interviews and hypertensive patients' blood pressure control. Health Psychol. 1987;6:29–42.
- Levinson W, Roter DL, Mullooly JP, Dull VT, Frankel RM. Physician-patient communication: the relationship with malpractice claims among primary care physicians and surgeons. JAMA. 1997;277:553-9.
- 26. Henbest RJ, Stewart M. Patient-centeredness in the consultation.2. Does it really make a difference? Fam Pract. 1990;7:28-33.
- 27. Kaplan SH, Greenfield S, Ware JE. Assessing the effects of physician-patient interactions on the outcomes of chronic disease. Med Care. 1989;27(suppl):110-27.
- 28. Greenfield S, Kaplan S, Ware JE. Expanding patient involvement in care. Ann Intern Med. 1985;102:520–8.
- Greenfield S, Kaplan SH, Ware JE, Yano EM, Frank HJL. Patients' participation in medical care: effects on blood sugar and quality of life in diabetes. J Gen Intern Med. 1988;3:448–57.
- Kleinman AM, Eisenberg L, Good B. Culture, illness, and care. Clinical lessons from anthropological and cross-cultural research. Ann Intern Med. 1978;88:251–8.
- Geist P, Ray EB, Sharf BF. Communicating Health: Communicating Personal, Political, and Cultural Complexities. Belmont Calif: Wadsworth; 2002.
- Kim S, Klingle RS, Sharkey WF, Park HS, Cai D. A test of a cultural model of patients' motivation for verbal communication in patient-doctor interactions. Commun Monogr. 2000;67: 262-83.
- Pettigrew TF. Race and class in the 1980s: an interactive view. Daedalus, 1981;110:233-55.
- 34. Sharf BF, Kahler J. Victims of the franchise: a culturally sensitive model of teaching patient-doctor communication in the inner city. In: Ray EB. ed. Communication and Disenfranchisement. Social Health Issues and Implications. Mahwah, NJ: Lawrence Erlbaum Associates: 1996:95–115.
- 35. Street RL. Physicians' communication and parents' evaluations of pediatric consultation. Med Care. 1991;29:46–52.
- Street RL. Analyzing communication in medical consultations. Do behavioral measures correspond to patients' perceptions? Med Care. 1992;30:976–88.
- Street RL, Voigt B, Geyer C, Manning T, Swanson GP. Increasing patient involvement in choosing treatment for early breast cancer. Cancer. 1995;76:2275–85.
- Boon H, Stewart M. Patient-physician communication assessment instruments: 1986–1996 in review. Patient Educ Couns. 1998; 35:162–76
- Rimal RN. Analyzing the physician-patient interaction: an overview of six methods and future research directions. Health Commun. 2001;13:89-99.
- Hall JA, Roter DL, Katz NR. Meta-analysis of correlates of provider behavior in medical encounters. Med Care. 1988;26:657–75.
- 41. Street RL. Communication in medical encounters: an ecological perspective. In: Thompson T, Dorsey A, Miller K, Parrott R, eds. The Handbook of Health Communication. Mahwah, NJ: Erlbaum. In press.

- Street RL. Communicative styles and adaptations in physicianparent consultations. Soc Sci Med. 1992;34:1155-63.
- Capella JN. The management of conversational interaction in adults and infants. In: Knapp ML, Miller GR. eds. Handbook of Interpersonal Communication. 2nd ed. Thousand Oaks, Calif: Sage; 1994:380-418.
- 44. Street RL. Active patients as powerful communicators: the linguistic foundation of participation in health care. In: Robinson WP, Giles H. eds. Handbook of Language and Social Psychology. 2nd ed. Chichester: John Wiley; 2001:541–60.
- Street RL. Information-giving in medical consultations: the influence of patients' communicative styles and personal characteristics. Soc Sci Med. 1991;32:541-48.
- Heszen-Klemens I, Lapinska E. Doctor-patient interaction, patients' health behavior, and effects on treatment. Soc Sci Med. 1984:19:9–18.

- Carter WB, Inui TS, Kukull WA, Haigh VH. Outcome-based doctor-patient interaction analysis. II. Identifying effective provider and patient behavior. Med Care. 1982;20:550–66.
- Merkel WT. Physician perception of patient satisfaction: do doctors know which patients are satisfied? Med Care. 1984;22: 453-9.
- Fredrickson LG, Bull PE. Evaluation of a patient education leaflet designed to improve communication in medical consultations. Patient Educ Couns. 1995;25:51-7.
- Roter DL. Patient participation in the patient-provider interaction: the effects of patient question asking on the quality of interaction, satisfaction and compliance. Health Educ Monogr. 1977;5:281–315.
- Tran AN, Haidet P, Street R, O'Malley KJ, Martin F, Ashton CM. Empowering communication: a community-based intervention for patients. Patient Educ Couns. In press.